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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,903	12/10/2003	Tomohiro Saito	02887.0261	5163

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Finnegan, Henderson, Farabow,
Garrett & Dunner, L.L.P.
1300 I Street, N.W.
Washington, DC 20005-3315

EXAMINER

BREWSTER, WILLIAM M

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 08/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/730,903	Applicant(s) SAITO, TOMOHIRO	
	Examiner William M. Brewster	Art Unit 2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 13 and 14 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-12 is/are allowed.
- 6) ☒ Claim(s) 1-3, 8 and 9 is/are rejected.
- 7) ☒ Claim(s) 4-7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>071404; 090204</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 1-12 in the reply filed on 22 July 2005 is acknowledged.

Claims 13-14 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 22 July 2005.

Drawings

Figures 23, 24, and 25 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 8, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Efland et al., US Publication No. 2003/0032231 A1 in view of Hirooka, US Publication No. 2003/0036025 A1.

Efland teaches a method of manufacturing a semiconductor device, comprising:
in fig. 6B, forming a first pattern 106 in a first region over a semiconductor substrate 100;
forming a second pattern in a second region, also labeled 106, separated from the first region over the semiconductor substrate;
depositing an interlayer insulation film, upper portion of layer 110, to cover the first and second patterns;
forming a photoresist film 112 on the interlayer insulation film;
in fig. 6C, treating the photoresist film in stepper exposure and development to form a photoresist pattern of a photomask having its device pattern matched with the first pattern, as evidenced by photoresist development 112 over structure 106;
in fig. 6C, selectively etching off the interlayer insulation film over the first and second patterns, with the photoresist pattern; and

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in fig. 6D, after removing the photoresist pattern, flattening the interlayer insulation film

106 to expose the surfaces of the first and second patterns, respectively, p. 4, ¶ 42-43.

limitations from claim 2, a method according to claim 1, in fig. 6D, wherein the flattening the interlayer insulation film is performed by chemical mechanical polishing the interlayer insulation film, p. 2, ¶ 43;

limitations from claim 8, in figs. 6B-6C, a method according to claim wherein the first and second patterns are simultaneously formed in a single forming using the same material, forming patterns 106.

Efland does not specify using alignment marks, but Hirooka does. Hirooka teaches in figs. 13A, 13B, and its alignment marks matched with patterns;

limitations from claim 3, a method according to claim 1, wherein the photomask is provided with marks for forming inspection targets for misalignment, and the step of forming a second pattern includes, prior to the depositing an interlayer insulation film, forming the second pattern that matches with the marks for forming inspection targets for misalignment, p. 10, ¶ 142-143;

limitations from claim 9, a method according to claim 1, in fig. 13 B, wherein the photoresist pattern over the second pattern is shaped in an almost cross-like plane pattern.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Hirooka's process with Efland's

invention would have been beneficial because alignment marks give a fixed reference for the photolithography tools to align their patterns.

Allowable Subject Matter

Claims 4-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 10-12 are allowed.

The following is an examiner's statement of reasons for allowance: in claim 10, the features of lines 3-26 including, forming dummy electrodes and a dishing inhibiting pattern in the target area, forming interlayer insulation film, photoresist patterning and selective etching, cmp the interlayer insulation to expose the surface of the dummy gate electrodes and dishing inhibiting pattern, and remove the dummy gate electrodes and filling, cannot be found in the prior art of record. The prior art of record fails to teach, in combination, the process features.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to William M. Brewster whose telephone number is 571-272-1854. The examiner can normally be reached on Full Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

William M. Brewster

9 August 2005

WB